REMARKS

Applicants have further amended the claims to more particularly define the invention taking into consideration the outstanding Official Action. In order to avoid any issue of the amendments raising new issues, the amendment is submitted with an RCE. Entry of the amendment is therefore in order and is most respectfully requested.

Applicants have carefully considered the objection to the amendment filed 5/12/2005 as introducing new matter into the application. This objection has been carefully considered but is most respectfully traversed. Applicants most respectfully submit that the defining the polymers as the first conductive layer and second conductive layer into the original disclosure would be recognized by one of ordinary skill in the art to be part of the specification as originally filed. In fact, the term first conductive layer and second conductive layer derives from first polymer and second polymer of the original disclosure, such as first polymer 13 and second polymer 17 described on page 1 and shown in its Figs. 1a-1e, and first polymer 23 and second polymer 27 described on pages 3-4. Applicants most respectfully submit that one of ordinary skill in the art would appreciate that since a polymer can be a conductive material and the polymer is in the form of a layer, the change from first polymer and second polymer to first conductive layer and second conductive layer should not exceed the scope of the original disclosure and can be supported accordingly. Accordingly, it is most respectfully requested that this objection be withdrawn.

The rejection of claims 1-6 under 35 U.S.C. 103 as unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Gluschenkov has been carefully considered but is most respectfully traversed.

Applicants wish to direct the Examiner's attention to the basic requirements of a prima facie case of obviousness as set forth in the MPEP § 2143. This section states that to establish a prima facie case of obviousness, three basic criteria first must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the

reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Section 2143.03 states that all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Applicants also most respectfully direct the Examiner's attention to MPEP § 2144.08 (page 2100-114) wherein it is stated that Office personnel should consider all rebuttal argument and evidence present by applicant and the citation of In re Soni for error in not considering evidence presented in the specification.

In the Official Action, the Examiner rejected Claims 1-6 of the present application under 35 U.S.C. 103(a) as being obvious over the Applicant's Admitted Prior Art (AAPA) in view of US Patent No. 6,838,334.

Claim 1 has been amended as above to more specifically define the features of the present invention. In amended Claim 1, the step of removing a portion of said dielectric layer not covered by said first conductive layer requires that a gap is formed between the sidewall of the deep trench and the first conductive layer; the step of refilling the deep trench with another dielectric layer requires that said another dielectric layer cover the gap; and the step of partially removing said another dielectric layer requires that at least a portion of said another dielectric layer filled in the gap be left.

With such amendment, the claimed refilling a gap step is distinguishable from the thermal oxidation of AAPA which covers a portion of the sidewall of the deep trench but does not cover the gap between the sidewall of the deep trench and the first conductive

layer. Accordingly, it is most respectfully requested that this aspect of the rejection be withdrawn.

The claimed refilling a gap step is even completely distinguishable from the 334. The 334 teaches first forming a first dielectric layer 125 on an upper portion 120 of the sidewall of a trench 105, then forming a second dielectric layer 135 on a lower portion 130 of the sidewall and bottom 115 of trench 105, and filling trench 105 with conductive fill 155, removing a portion of conductive fill 155 from trench 105, removing the portion of the first dielectric layer 125 not covered by conductive fill 155. Apparently, the 334 does not have any connection with refilling a gap between the sidewall of the deep trench and the first conductive layer.

In view thereof, there is no motivation for a person of ordinary skill to conceive the above creation of the present invention based on the teaching of AAPA and the 334. Therefore, the claimed invention with the above amendment cannot be readily anticipated and has non-obviousness over the prior art. Accordingly, it is most respectfully that this rejection be withdrawn.

In addition, as noted in the previous response, the dielectric layer 14, that is, the oxide layer 14 described in AAPA is formed by thermal oxidizing the sidewall of the deep trench not covered by the first polysilicon, rather than "refilling". In addition, since this dielectric layer 14 is an oxide layer formed by oxidizing the sidewall of the deep trench, the oxide layer 14 is not able to fill in a gap 15 as shown in Figs. 1b and 1c.

The process of the present invention is distinguishable from AAPA. The method disclosed in the AAPA does not teach the step of refilling the deep trench with another dielectric layer. In the method of the present invention, after a portion of the dielectric layer 22 not covered by the first conductive layer 23 is removed, another dielectric layer 25, preferably of the same material as the dielectric layer 22, refills the deep trench at the sidewall of the deep trench, so as to fill in the gap between the sidewall of the deep trench and the first conductive layer, which gap is generated because the height of the partially removed dielectric layer 22 is lower than the top of the first conductive layer in practical process.

The method disclosed in 334 is very different from the present invention. According to the descriptions, a trench 105 is formed in a substrate 100. A first dielectric layer 125 is formed on an upper portion 120 of the trench sidewall. Then, a second dielectric layer 135 is formed on a lower portion 130 of the sidewall and bottom 115 of the trench, as shown in Fig. 1A. The trench is filled with conductive fill 155, as shown in Fig. 1B. Then the conductive fill 155 is removed a portion from the trench, as shown in Fig. 1C. In Fig. 1D, the portion of the first dielectric layer 125 not covered by the conductive fill 155 is removed. Apparently, the steps of the process in 334 are likely in a reverse order as compared with the present invention. In 334, the first dielectric layer 125 is previously formed on the upper portion 120 of the trench sidewall, then the second dielectric layer 135 is formed on the lower portion of the trench sidewall and trench bottom. The method 334 does not teach "refill a gap" in any sense. Therefore, 334 is not sufficient evidence to one of ordinary skill in the art to render the presently claimed invention obvious, even being used in conjunction with AAPA.

In conclusion, the present invention is indeed non-obvious over AAPA in view of 334 as having the distinguishable features of refilling the deep trench with the nitride layer and partially removing the same so as to properly fill in the undesirable gap, which is not suggested by the prior art. Moreover, Applicant's specification may not be used as a teaching reference to modify the reference to arrive at the claimed invention. In re Fritch, 23 USPQ 1780, 1784(Fed Cir. 1992) ("It is impermissible to engage in hindsight reconstruction of the claimed invention, using the applicant's structure as a template and selecting elements from references to fill the gaps.). Therefore the rejections should be withdrawn and a patent granted on the claims now present in the application. I n view of the above comments and further amendments to the specification and claims, favorable reconsideration and allowance of all of the claims now present in the

application are most respectfully requested.

Respectfully submitted,

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